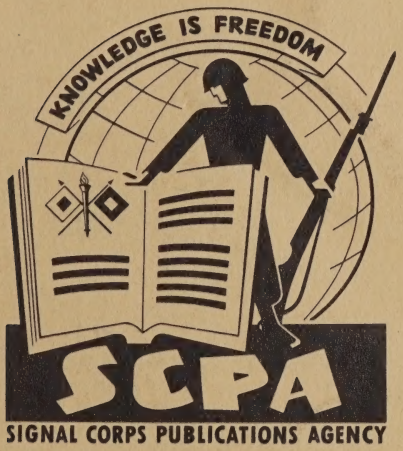
MX-1292

INSTRUCTION BOOK

FOR

ELECTRIC LIGHT ASSEMBLY

MX-1292/PAQ



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SIRCHIE FINGER PRINT LABORATORIES

Order No. 20806—Phila—52-18

26 January 1953

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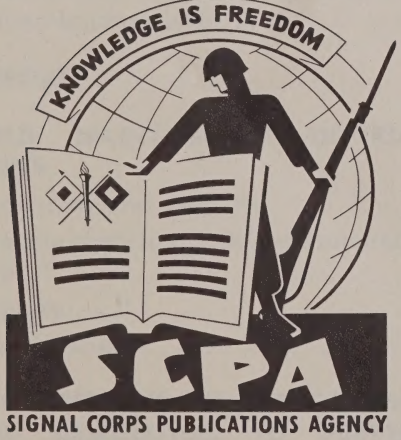

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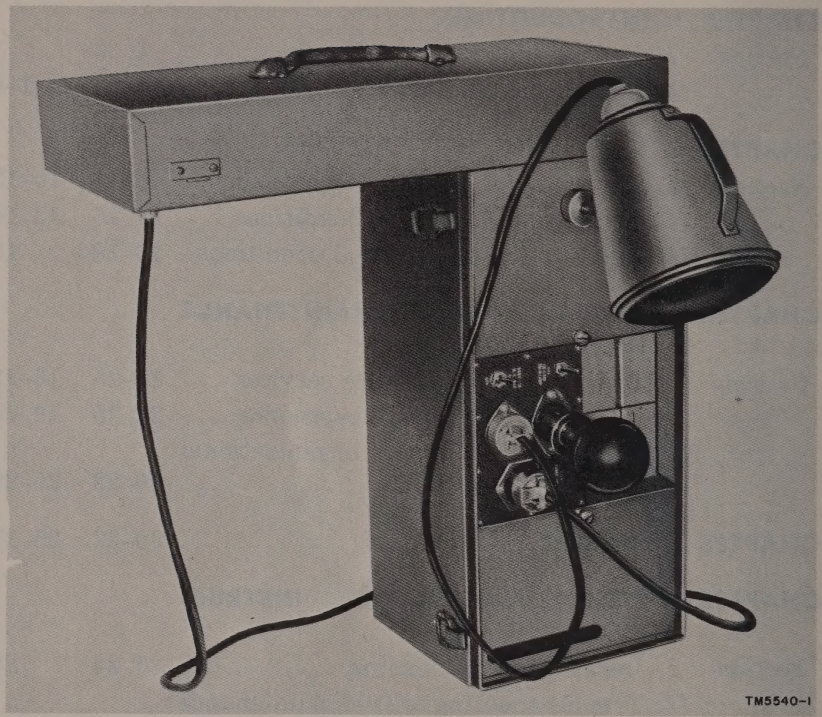


Figure 1. Electric Light Assembly MX-1292/PAQ.

Note. This instruction book will be replaced by TM 11-5540 which, when published, will be listed in SR 310-20-4.

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

a. This book of instructions is published for the information and guidance of the personnel to whom the equipment is issued. It contains information on the installation, operation, organizational maintenance, field maintenance, and theory of operation of the equipment, as well as a description of the two major components. The instructions in this book apply only to Electric Light Assembly MX-1292/PAQ.

b. Appendix I contains a list of current references, including supply catalogs, technical manuals, and other available publications applicable to the equipment. Appendix II contains an identification table of parts.

2. Forms and Records

The following forms will be used for reporting unsatisfactory conditions of Army equipment.

a. DD Form 6, Report of Damaged or Improper Shipment, will be filled out and forwarded as prescribed in SR 745-45-5 (Army), NAV DEPT SERIAL 85P00 (Navy), and AFR 71-4 (Air Force).

b. DA AGO Form 468, Unsatisfactory Equipment Report, will be filled out and forwarded to the Office of the Chief Signal Officer, as prescribed in SR 700-45-5.

c. AF Form 54, Unsatisfactory Report, will be filled out and forwarded to the Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio, as prescribed in SR 700-45-5, and AFR 65-26.

d. Use other forms and records as authorized.

Section II. DESCRIPTION AND DATA

3. General

(fig. 1)

a. Electric Light Assembly MX-1292/PAQ is a lightweight, portable ultraviolet detection set for laboratory or field use. It

consists of two major components: a long-wave transmitting light assembly (long-wave unit) and a short-wave transmitting light assembly (short-wave unit), which together provide three separate sources of ultraviolet light. Either assembly can be operated independently, or both can be used at one time.

b. The equipment is used to fluoresce various materials for criminal investigation purposes, for analysis of documents, for destruction of bacteria, for reading invisibly coded maps, and for performing related functions.

(1) Criminological applications are as follows:
Raising and developing latent fingerprints.
Detecting forgeries, falsified documents, and erasures.
Identifying currency, narcotics, clothing, and minerals.
Identifying dead bodies, bloodstains, and fragmentary evidence at the scene of a crime.
Revealing invisible writing.
Detecting *planted* evidence.

(2) Military applications are as follows:
Reading transmitted secret communications and invisibly coded messages.
Facilitating ground operations during blackouts in the absence of visible light.
Identifying military equipment.
Identifying bearers of top security cards with invisibly coded signatures.
Facilitating night movements of scout and patrol parties when they advance to reconnoiter, and providing a means of back-tracking their trail when radio communications cannot be used.
Signaling at night during trench warfare when an invisible beam is necessary.
Locating missing night patrols in war zones by trailing their path of advance.
Maintaining intervals in convoys during night operations.
Reading military maps at night in combat zones.
Revealing invisible writing.
Detecting fungi, and destroying bacteria, vermin, and similar undesirable forms of life.

4. Table of Components

Component	Quantity	Dimensions (in.)			Weight (lb)	Volume (cu ft)
		Height	Width	Length		
Long-wave unit (fig. 2).	1	19	8¾	8	27½	.78
Short-wave unit (fig. 4).	1	19	8¾	3	11	.29

Component	Quantity	Dimensions (in.)			Weight (lb)	Volume (cu ft)
		Length	Width	Height		
Goggles.	2					
Set of spare parts (figs. 2 and 4):	1					
Long-wave mercury-vapor lamp.	1					
Photographic filter.	1					
Wide-transmission filter.	1					
Emergency black-light lamp.	1					
Germicidal lamp.	2					

Note. This list is for general information only. See appropriate publications for information pertaining to the requisitioning of spare parts.

5. Long-wave Unit

(fig. 2)

The long-wave unit is a complete, self-contained unit, housed in a partitioned, rectangular case. It provides two separate sources of light in the near-ultraviolet portion of the spectrum. One of these sources, the mercury-vapor lamp, can be used with either of two filters. One filter furnishes wide transmission of ultraviolet light for inspection of evidence; the other provides transmission within a region suitable for photographic purposes. The second light source is an emergency black-light lamp for use when the other light sources fail.

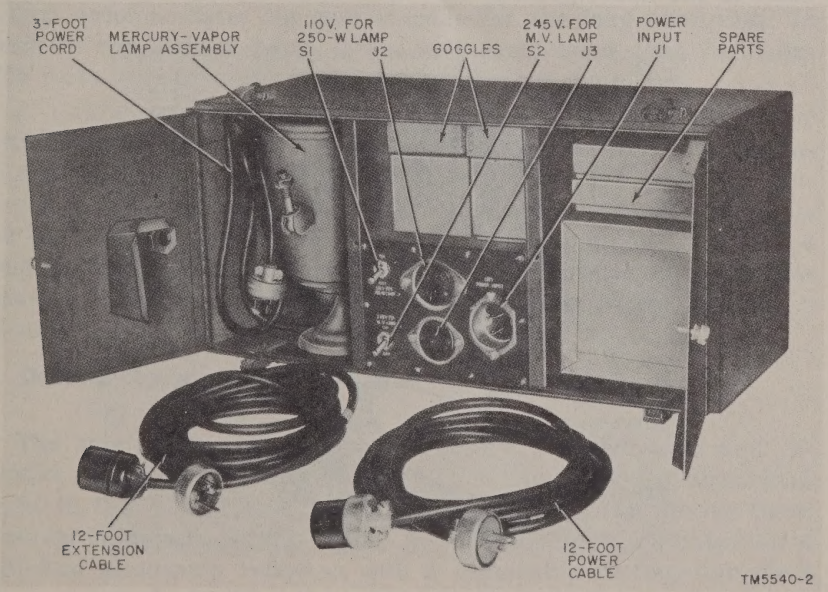


Figure 2. Long-wave unit, front view.

a. CASE. The olive-drab, sheet-metal case, which houses the long-wave unit, is divided into three compartments. The center compartment is divided into two sections, one to hold spare parts, goggles, and the 12-foot power cord, and the other to house an autotransformer and a control panel. One of the end compartments houses the mercury-vapor lamp assembly and its base when they are not in use, and the other end compartment contains spare parts, the 12-foot extension cable, and the 12-foot power cable. Each end compartment has a hinged door. Two slip hinges are fitted to one end of the case for mounting the short-wave unit, if necessary. Four latch fasteners on the outside of the case secure the short-wave unit to the long-wave unit when the equipment is not in use.

b. MERCURY-VAPOR LAMP ASSEMBLY (fig. 3). The mercury-vapor lamp assembly is used for investigations that require light in the near-ultraviolet region. It can be mounted on the long-wave unit case or, if the detachable base is used, it can be placed on a desk or mounted on a wall. The assembly consists, essentially, of a mercury-vapor lamp and hood and a cast-iron base. Either of two circular glass filters is mounted on the front of the lamp by means of a split-ring-type filter holder. The metal hood is fitted with a carrying handle and a lampholder, to which is attached a 3-foot power cord. Ventilation for the lamp is provided by a hole in the bottom of the hood. When the assembly is mounted on the case of the long-wave unit, the threaded stem is screwed into a bushing on the case. A semiuniversal joint, which connects the stem to the hood, permits the lamp to be swung 360° in a hori-

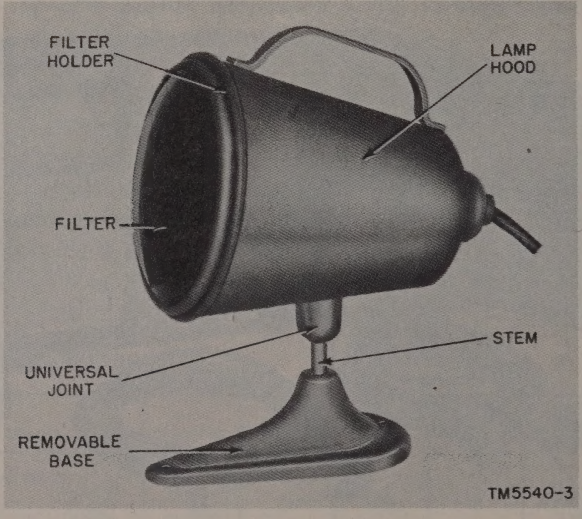


Figure 3. Mercury-vapor lamp assembly.

zontal plane and 90° in a vertical plane. For portable operation, the cast-iron base is screwed on the stem and secured by a lockwasher and a nut.

c. Emergency Black-light Lamp and Adapter (fig. 6). The emergency lamp is a 110-volt, a-c (alternating-current), incandescent-type ultraviolet lamp, similar in shape to an ordinary light bulb with a standard screw base. It is mounted in operating position by a plastic-shelled adapter that plugs into a receptacle on the control panel or into any standard outlet. When not in use, the lamp and adapter are stored in the center compartment of the case.

d. Control Panel (fig. 2). The control panel, which is located in the center compartment of the long-wave-unit case, mounts three receptacles and two toggle switches. The toggle switch in the upper left-hand corner of the panel, marked 110 V. FOR 250-W LAMP, is the ON-OFF switch for the emergency black-light lamp, or for the short-wave unit when it is plugged into the long-wave unit. In the lower left-hand corner of the panel is a toggle switch, marked 245 V. FOR M.V. LAMP, which serves as the ON-OFF switch for the mercury-vapor lamp assembly. The upper (T-slot) receptacle (J2), in the center of the control panel, receives either the emergency black-light lamp adapter or the short-wave unit power cable. The locking-type receptacle (J3) below receives either the 3-foot power cable of the mercury-vapor lamp assembly or the 12-foot extension cable. At the right-hand side of the panel is a receptacle (J1), marked 110 V. POWER INPUT, which accommodates the power cable for the long-wave unit. In back of the control panel is an autotransformer that furnishes 245 volts for operation of the mercury-vapor lamp.

e. Cables (fig. 2). Two cables are provided with the long-wave unit: one for use as an extension cable to permit remote operation of the mercury-vapor lamp assembly, and the other for connecting the unit to a 110-volt a-c supply. The extension cable is 12 feet long and has a male twist-lock plug at one end and a female twist-lock plug at the other end. The power cable, which is also 12 feet long, has a standard 2-prong plug at one end and a T-slot female plug at the other end.

6. Description of Short-wave Unit

(figs. 4 and 5)

The short-wave unit is an independent, self-contained unit inclosed in a flat rectangular case. This unit provides ultraviolet light in the middle and far ultraviolet regions. It contains three fluorescent-type mercury-vapor, germicidal lamps mounted on a polished aluminum reflector, and a removable rectangular glass filter mounted on a hinged panel in front of the lamps. Two spare

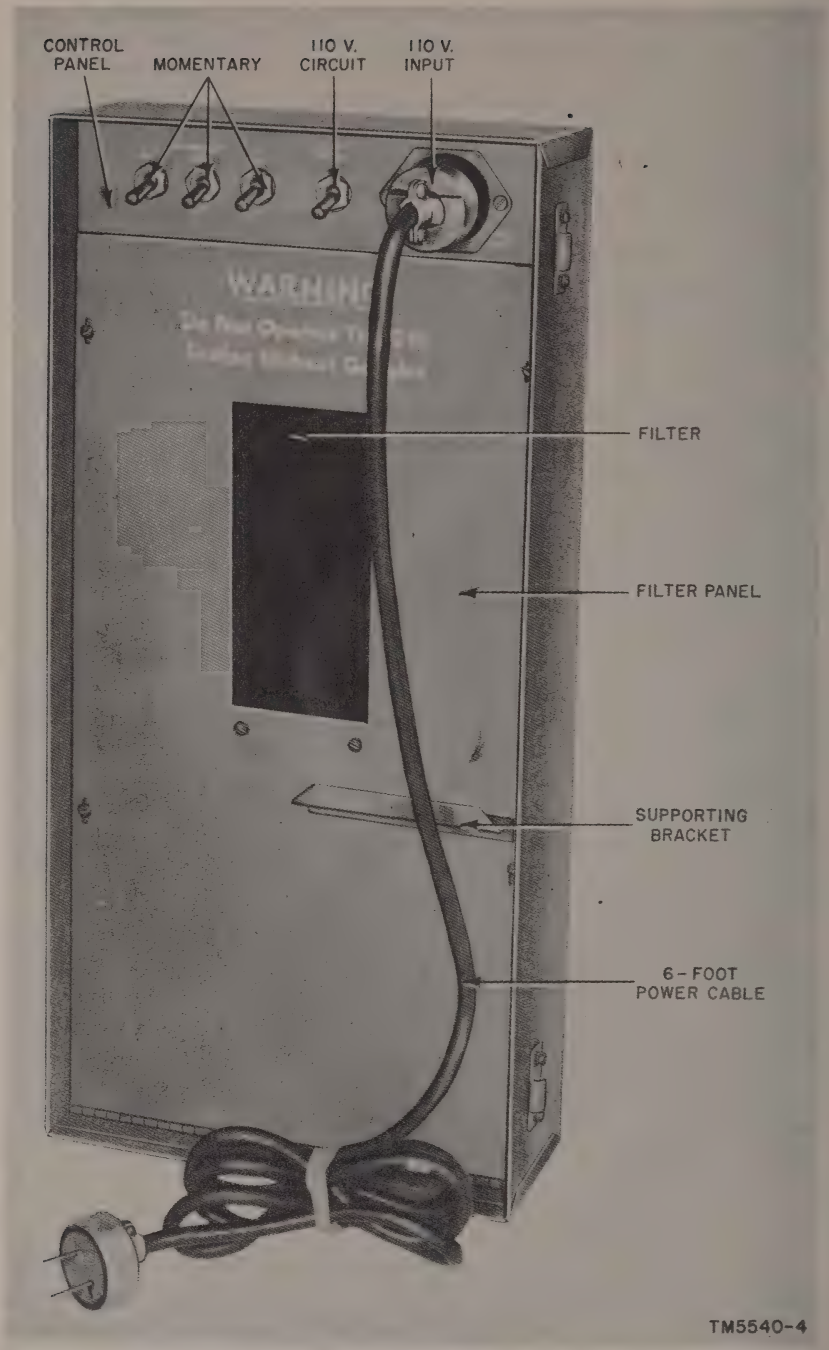


Figure 4. Short-wave unit, front view.

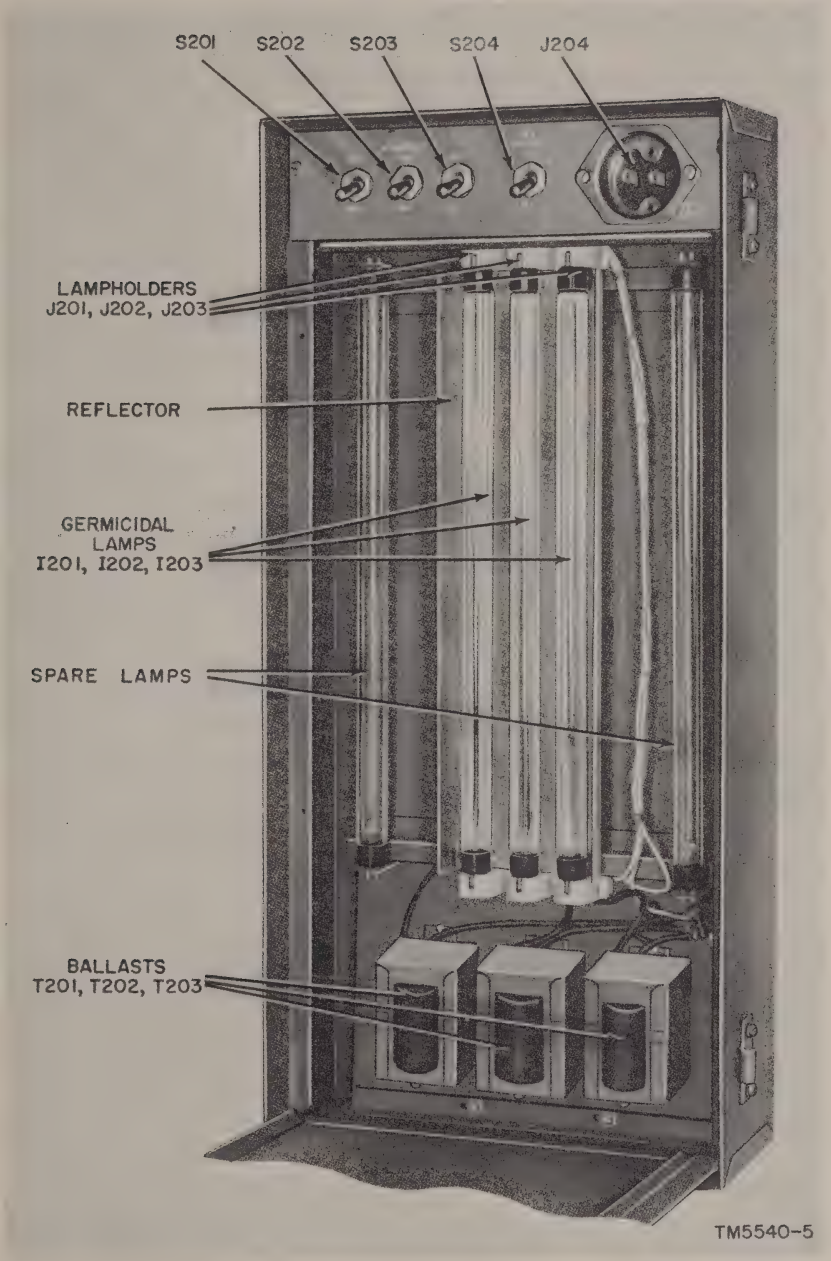


Figure 5. Short-wave unit, front view, filter panel open.

germicidal lamps are stored on either side of the reflector. At the upper end of the unit is a control panel with four ON-OFF toggle switches and a receptacle. The first three switches, marked MOMENTARY, are the starter switches for the germicidal lamps. The next switch, marked 110 V. CIRCUIT, is the ON-OFF power switch for the short-wave unit. The male receptacle at the right-hand side of the panel, marked 110 V. INPUT, receives the power cable for the short-wave unit. The cable is 6 feet long and terminates in a female plug at one end and a standard 2-prong plug at the other end. Two slip-hinges are located on one end of the case for mounting the unit on the long-wave unit case. When the equipment is not in use, the short-wave unit serves as a lid which fits on the top of the long-wave unit and is secured in place with latch fasteners. A folding metal handle attached to the case permits the equipment to be carried by one person.

7. Goggles

Two pairs of special goggles are furnished with the electric light assembly. They are used to protect the eyes of the operator from harmful radiation when the short-wave unit is in operation.

8. Technical Characteristics

a. LONG-WAVE UNIT:

Light sources:	
Mercury-vapor lamp	100 w.
Incandescent black-light lamp	250 w.
Regions of transmission:	
Mercury-vapor lamp with:	
Wide-transmission filter	3,100 to 4,800 A[1] (peak: 3,650 A).
Photographic filter	3,130 to 4,050 A (peak: 3,650 A).
Incandescent black-light lamp	3,100 to 4,620 A (peak: 3,800 A).
Effective distance of transmission (in total darkness):	
Mercury-vapor lamp with:	
Wide-transmission filter	40 ft.
Photographic filter	15 ft.
Incandescent black-light lamp	25 ft.
Power source:	110- to 120-v, 60-cycle ac.

[1] A is the abbreviation for Angstrom, a unit of measurement of the wavelength of light.

b. SHORT-WAVE UNIT:

Light source:	
3 mercury-vapor germicidal lamps	8 w each.
Region of transmission (with filter)	2,280 to 4,200 A (peak: 3,230 A).
Effective distance of transmission (in total darkness	15 ft.
Power source:	110- to 120-v, 60-cycle ac.

9. Packaging Data

a. DOMESTIC SHIPMENT. Two bags of silica gel are placed in the mercury-vapor lamp assembly storage compartment and two in the center compartment of the long-wave unit. The long-wave and short-wave units are fastened in carrying position by the latch fasteners and inclosed in a corrugated carton. This carton has a corrugated liner and a top and bottom pad to prevent movement of the equipment. The carton is placed in a moisture-vapor-proof, heat-sealed, foil bag from which the air has been evacuated. The bag is inclosed in a close-fitting, corrugated, cardboard carton, which is sealed with adhesive tape. Each package is 20⅝ by 11 by 13¼ inches in size and weighs approximately 46 pounds.

b. OVERSEA SHIPMENT. Two complete equipments, packaged as described in subparagraph *a* above, are packed in a lined wooden case secured with ⅜-inch steel straps. The case is 23 by 21¼ by 14¼ inches in size and weighs approximately 122 pounds.

CHAPTER 2
OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

10. Uncrating, Unpacking, and Checking New Equipment

a. Unpack Electric Light Assembly MX-1292/PAQ as outlined below. Avoid damaging the packaging materials so far as possible, so that they may be used for possible repacking.

(1) Open the wooden shipping case (if the equipment has been packed for export shipment) by cutting the metal straps. Remove nails with a nailpuller.

(2) Remove a carton from the case and place it in position so that the words THIS SIDE UP are on top.

(3) Slit the top, and lift the foil bag out of the carton.

(4) Slit open the top of the bag, and remove the inner cardboard carton.

(5) Open the inner carton, and lift out the equipment. Release the four latch fasteners and lift off the short-wave unit. Remove the four silica gel bags.

b. Check the equipment against the table of components and running spares, description of components, and accessory equipment supplied (pars. 4, 5, 6, and 8).

c. Inspect the equipment for possible damage during shipment as follows:

(1) Remove the spare-parts boxes from the right-hand compartment of the long-wave unit case and inspect the contents for scratches, cracks, chips, or breakage.

(2) Remove the spare-parts boxes from the center compartment and check the contents for scratches, cracks, chips, or breakage.

(3) Remove the mercury-vapor lamp from the left-hand compartment. Grasp the metal filter-holder ring and turn it counterclockwise. Remove the ring and filter, and inspect the lamp for breakage. Check the filter to see that it is free from scratches, chips, or cracks.

(4) Remove the four screws that secure the hinged filter panel to the short-wave unit and swing the panel open. Examine the five germicidal lamps for breakage, and then inspect the filter for scratches, chips, or cracks.

Note. When used equipment is received, follow the procedure outlined above for new equipment.

11. Locating

Electric Light Assembly MX-1292/PAQ should be used in a dry, dust-free location with at least one 110-volt, 60-cycle outlet. Total darkness is not essential for operation, but external light should be reduced to a minimum for most efficient results.

12. Installation

The type of installation selected depends on the type of investigation to be made. Possible installations are as follows:

a. The long-wave and short-wave units can be operated together by connecting them in accordance with the following procedure:

(1) Release the four latch fasteners and lift off the short-wave unit. Place the long-wave unit on end on the desk or bench where it is to be operated. The mercury-vapor lamp-assembly compartment must be at the top.

(2) Mount the short-wave unit on top of the long-wave unit by engaging the slip hinges and sliding the short-wave unit into place. Hold the short-wave unit in an upright position until the slip hinges are fully engaged, and then lower the unit into place on its supporting bracket.

(3) Remove the mercury-vapor lamp assembly from its compartment and prepare it for mounting by removing the nut from the threaded stem. Leave the lockwasher on the stem so that it will not be lost or misplaced. See that the proper filter (par. 5) is attached.

(4) Mount the mercury-vapor lamp assembly by screwing it into the bushing on the storage compartment door.

Caution: Hold the lamp hood firmly in both hands to avoid bending or breaking the stem when screwing it into the bushing. Be sure that the stem is alined with the threaded hole in the bushing at all times. After the assembly has been seated firmly in the bushing, point it in a downward direction.

(5) Check to see that all power switches on both units are in the OFF position, and then attach the power cables. Plug one end of the 12-foot power cable into the long-wave-unit control panel receptacle marked 110 V. POWER INPUT, and plug the other end into a 110-volt, 60-cycle outlet. Plug the 3-foot cable attached to the

mercury-vapor lamp assembly into the 245 V. FOR M.V. LAMP receptacle. Plug the 6-foot cable into the short-wave-unit control panel receptacle marked 110 V. INPUT. Connect the other end to the long-wave-unit control panel receptacle marked 110 V. FOR 250-W. LAMP or, if the emergency black-light lamp is already installed in the receptacle or is to be used, into any 110-volt, 60-cycle outlet.

b. The long-wave and short-wave units can be operated either together or separately when installed as described in subparagraph *a* above, if the short-wave unit is placed on end on a support (fig. 4) instead of mounted on top of the long-wave unit.

c. The mercury-vapor lamp assembly can be operated remotely if the base is attached (fig. 3). The assembly can then be placed on a desk or bench or fastened to a wall. When wall mounting is used, fasten the base to the wall with two ⅛-inch wood screws ½- or ¾-inch long. Plug the 3-foot power cable attached to the assembly into the 12-foot extension cable, and then plug the ex-

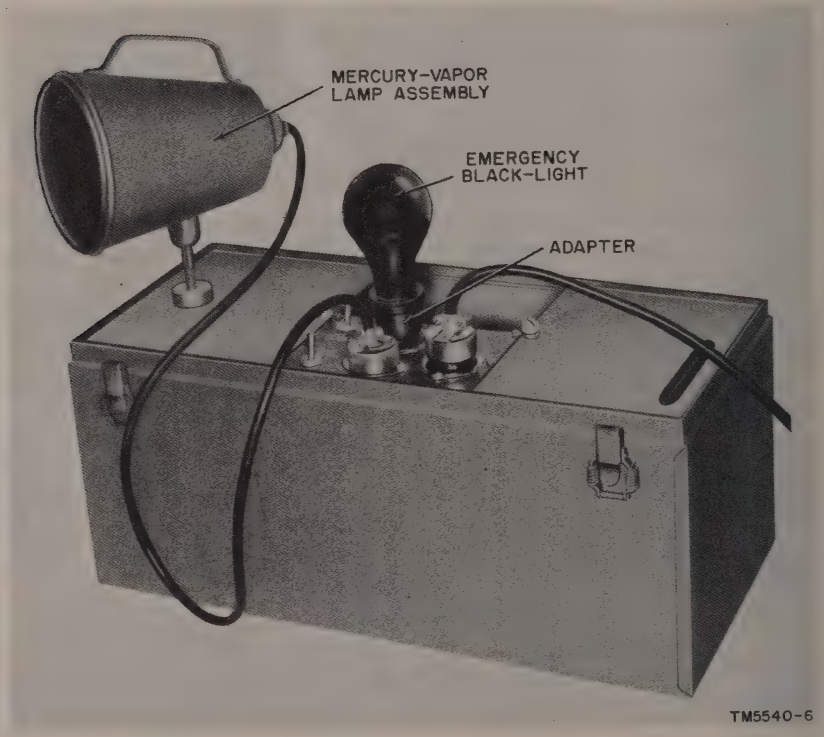


Figure 6. Long-wave unit, horizontal operating position.

tension cable into the long-wave-unit control panel receptacle marked 245 V. FOR M.V. LAMP. The mercury-vapor lamp operates only from a 245-volt supply; therefore the control-panel receptacle must always be used.

d. The emergency black-light lamp can be used either by plugging it into the long-wave unit receptacle marked 110 V. FOR 250-W. LAMP, or by plugging it into any standard 110-volt, 60-cycle outlet. In either case, the lamp-base adapter must be used.

e. The long-wave unit can be operated from a horizontal position (fig. 6) for long-range investigations.

13. Service Upon Receipt of Used or Reconditioned Equipment

Used or reconditioned equipment should be checked both physically and electrically immediately upon receipt.

a. Unpack and check the equipment (par. 10). Check all cable plugs for damage and for loose connections.

b. Set up the electric light assembly as directed in paragraph 12*a*. Throw the 245 V. FOR M.V. LAMP switch on the long-wave unit to ON, and check to see that the mercury-vapor lamp lights. Throw the 110 V. CIRCUIT switch on the short-wave unit to ON. Then hold each of the MOMENTARY switches in the ON position for several seconds; be sure that each lamp lights as the associated switch is released. Throw the 110 V. CIRCUIT switch to OFF, and remove the short-wave unit power cable from the control panel of the long-wave unit. Insert the emergency black-light lamp into the 110 V. FOR 250-W. LAMP receptacle, and throw the associated toggle switch to ON. The lamp should light when the switch is thrown.

Caution: Be sure to wear goggles when the germicidal lamps are turned on.

Section II. OPERATION UNDER USUAL CONDITIONS

14. Controls and Their Use

a. LONG-WAVE UNIT (fig. 2). The two long-wave unit controls are located on the control panel in the center compartment of the case. The upper ON-OFF switch, marked 110 V. FOR 250-W LAMP, is used as a power switch for the emergency black-light lamp circuit or for the short-wave unit when that unit is connected to the 110 V. FOR 250-W. LAMP receptacle. The lower ON-OFF switch, marked 245 V. for M.V. LAMP, is the power switch for the mercury-vapor lamp circuit.

b. SHORT-WAVE UNIT (fig. 4). The controls for the short-wave unit are located just above the rectangular filter. The first three

ON-OFF switches, marked MOMENTARY, are starter switches for the short-wave germicidal lamps. The fourth ON-OFF switch is the power switch for the short-wave unit.

15. Equipment Operation

a. LONG-WAVE UNIT. To turn on the emergency black-light lamp, throw the 110 V. FOR 250-W. LAMP switch to ON. To energize the mercury-vapor lamp, throw the 245 V. FOR M.V. LAMP switch to ON.

Caution: The emergency black-light lamp reaches a high temperature within a very short time. The operator must avoid contact with the lamp or severe burns may result. The lamp is designed for intermittent operation; *the burning period should not exceed 5 minutes* and the cooling time should be twice the duration of the burning period.

b. SHORT-WAVE UNIT. To turn on the short-wave germicidal lamps, throw the 110 V. CIRCUIT switch to ON. Hold each of the MOMENTARY switches in the ON position for several seconds, and then release it. When the power cord for the short-wave unit is connected to the 110 V. FOR 250-W. LAMP receptacle on the long-wave unit, the 110 V. FOR 250-W. LAMP switch must be at the ON position before the short-wave unit can be energized. Turn the germicidal lamps off by throwing the 110 V. CIRCUIT switch to OFF.

Caution: Radiation from the short-wave germicidal lamps is injurious to the eyes. When operating the short-wave unit, always wear the special goggles provided.

c. CHARACTERISTIC FLUORESCENCE OF MATERIALS ENCOUNTERED IN CRIME DETECTION AND IDENTIFICATION.

Material	State	Natural color	Characteristic fluorescence	
			With germicidal lamps	With mercury-vapor or black-light lamp
Laundry marks	In solution	Invisible	Light blue	Intense light blue
Blood	In acid solution	Red	None	Yellowish red
Urine	Natural	Variable	Yellow	Faint yellow
Semen	Natural	Grayish-white	Light blue	Blue-white
Teeth	Natural	Bone-white	Blue-white	Intense blue-white
Cocaine	Powdered	White	Light blue	Blue-white
Heroin	Powdered	White	Light blue	Yellow-gray
Morphine	In solution	White	Pale green	Pale green
Codeine	Powdered	White	None	Faint gray

Material	State	Natural color	Characteristic fluorescence	
			With germicidal lamps	With mercury-vapor or black-light lamp
Arsenic	Lump	Black	None	Blue
Silver	Lump	Gray	Violet	Violet
Platinum	Solid	Silver-gray	None	Violet
Uranium	Solid	Variable	Yellow-green	Intense yellow-green
Motor oil	Refined	Variable	Blue	Intense light blue
Fungi	Natural	Variable	Violet	Violet

Secton III. OPERATION UNDER UNUSUAL CONDITIONS

16. Operation in Arctic Areas

Keep the electric light assembly under cover as much as possible. When it is necessary to use the equipment, expose it slowly to ambient temperatures. See that moisture does not accumulate on the filters and lamps and on the connector contacts. Snow and ice must be kept out of the equipment.

17. Operation in Desert Areas

Sand and dust must be kept out of the equipment. Wipe dust or dirt from filters before operation, and always keep the equipment covered when it is not in use.

18. Operation in Tropical Areas

Keep the equipment free of dirt and moisture. Disconnect the equipment from the power supply when it is not in in use. Remove any fungus growth that may accumulate on electrical connections.

CHAPTER 3
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. PREVENTIVE MAINTENANCE SERVICES

19. Definition of Preventive Maintenance

Preventive maintenance means making systematic checks at regular intervals to keep equipment operating at top efficiency. It is not the same as trouble shooting or repair. The purpose of preventive maintenance is to *prevent break-downs* and, therefore, the need for repair. The purpose of trouble shooting and repair is to *locate and to correct existing defects.* The importance of preventive maintenance cannot be overemphasized. Failure or inefficient operation of one part of the equipment may cause the failure of the entire assembly. It is vitally important, therefore, that operators and repairmen maintain equipment properly.

20. Tools Supplied with Equipment

A screw driver with a 5/32-inch blade is supplied for servicing the equipment. It is held in the mercury-vapor lamp storage compartment by a metal clip.

21. Materials Required for Maintenance

No materials are issued or supplied with Electric Light Assembly MX-1292/PAQ. For routine preventive maintenance work, the items listed below are required.

Item	Used to
Cloth, lint-free.	Clean surfaces of case. lamps, filters, and male contacts of receptacles and plugs.
Sandpaper #000.	Clean male contacts, screw threads, and lamp bases; and smooth chipped or scratched paint.
Solvent, Dry-Cleaning (SD).	Clean surfaces.
Carbon tetrachloride.	Clean electrical contacts.

Note. Do not use gasoline as a cleaning fluid. Repeated contact of carbon tetrachloride with the skin or prolonged breathing of the fumes is dangerous. Be sure adequate ventilation is provided.

22. Detailed Instructions

a. It is important that the equipment be kept free of dust and dirt to prevent deterioration and to insure maximum transmission of ultraviolet light. Clean and dust all parts of the equipment before using it.

(1) Empty the long-wave unit case of all removable parts and assemblies, and use a clean, damp, lint-free cloth to wipe the exterior and interior surfaces. Use soap and water if necessary, but be careful to prevent water from entering receptacles on the control panel. To remove grease, use a clean cloth dampened with solvent (SD), *except for electrical contacts.*

(2) To clean the short-wave unit case, wipe the exterior surfaces with a dry or damp cloth; use a dry cloth for the interior surfaces.

(3) Clean the long-wave mercury-vapor lamp and filters and the black-light lamp with a clean, lint-free cloth. If dirt or fingerprints do not come off easily, use a cloth dampened with water, and then wipe the surfaces dry. All glass filters can be washed with soap and water, but be careful not to scratch the glass. Clean the spare filters before using them.

(4) Wipe all cables with a clean cloth; dampen the cloth with solvent (SD), if necessary.

(5) Open the hinged filter panel on the short-wave unit, and remove the filter; clean both surfaces of the filter (subpar. (3) above). Remove the germicidal lamps and wipe them with a clean, dry or damp cloth. Polish the aluminum reflector with a clean, dry, lint-free cloth.

Note. The importance of keeping the filters and lamps clean cannot be overemphasized. Ultraviolet transmission can be reduced by one third or more because of accumulations of dust, dirt, and fingerprints. This attenuation of transmitted ultraviolet light is not always apparent, because dust particles absorb the invisible ultraviolet rays while the visible light rays appear to be only slightly diminished.

b. Inspect the equipment for cracks, chipped or scratched paint, rust, and bent or dented metal parts and hardware. Examine for loose or missing screws, scratched or chipped filters, mildew, fungus, and accumulations of moisture. Tighten all loose screws and mountings. Inspect lamp bases and sockets for rust. Check all switches for positive action, freedom of movement, and tight mountings. Examine the cable assemblies for loose or broken connections, worn insulation, loose or bent plug contacts, and cracked or broken connectors. Examine the mercury-vapor lamp assembly stem and filter mounting screw for stripped threads. Clean electrical contacts with a cloth moistened with carbon tetrachloride, and then dry them with a clean cloth.

23. Preventive Maintenance Checklist

The following checklist gives preventive maintenance procedures for Electric Light Assembly MX-1292/PAQ.

Caution: Before inspecting lampholders and receptacles, make sure that all power cables are disconnected from the power source.

What to check	When to check	How to check and correct	Precautions
Switches.	Daily, before use.	Check for positive action, freedom of movement, and security of mountings. Tighten retaining nuts and mounting screws.	
Long-wave mercury-vapor lamp and emergency black-light lamp.	Daily, before use.	Check to see that lamps are clean and screwed securely into their sockets. Be sure that lamp lights when the associated switch is turned to ON. Clean lamps, and replace any that are burned out.	Do not screw lamps too tightly in sockets; they may break.
Germicidal lamps.	Daily, before use.	Check to see that they are operating normally. Replace burned-out lamps.	Be sure to wear goggles.
Filters.	Daily, before use.	Examine for dirt, fingerprints, cracks, chips, or scratches. Clean. Replace badly cracked or badly marred filters.	
Germicidal lampholders.	Weekly.	See that lamps are seated securely in lampholders. Check for dirty or corroded lampbases or lampholders. Inspect for cracked or broken lampholders, and for loose mounting screws. Clean lampbases and lampholders. Replace cracked or broken lampholders; tighten loose mounting screws.	Screws should be hand tight only.
Emergency black-light lamp adapter.	Weekly.	Examine for dirt, corrosion, cracked shell, and for bent or spread prongs. Clean. Straighten bent prongs. Replace adapter, if necessary.	
Mercury-vapor lampholder.	Weekly.	Examine for dirt, corrosion, loose mounting screws and connections, and cracked ceramic body. Clean. Tighten screws and connections. Replace cracked lampholder.	Screws should be hand tight only.

What to check	When to check	How to check and correct	Precautions
Cables and connectors.	Weekly.	Check for abrasions, cuts, and breaks in insulation. Examine connectors for loose connections, corrosion, mildew, and bent contacts. Repair insulation with friction tape. Tighten or solder loose connections as required. Clean and straighten male contacts. Increase tension of loose female contacts. Check for loose mounting screws.	Screws should be hand tight only.
Cases.	Monthly.	Inspect for dirt, corrosion, scratched or chipped paint, dents, loose or broken hardware and fittings, stripped screw threads, and loose mounting screws. Clean. Sandpaper and paint if necessary. Tighten loose mounting screws. Repair or replace case if it is badly dented, or if hardware is missing.	

Section II. LUBRICATION AND WEATHERPROOFING

Note. No lubrication is required for Electric Light Assembly MX-1292/PAQ.

24. Weatherproofing

a. GENERAL. Signal Corps equipment, when operated under severe climatic conditions such as prevail in tropical, arctic, and desert regions, requires special treatment and maintenance. Fungus growth, insects, dust, corrosion, salt spray, excessive moisture, and extreme temperatures are harmful to most materials.

b. TROPICAL MAINTENANCE. A special moistureproofing and fungiproofing treatment has been devised which, if properly applied, provides a reasonable degree of protection. This treatment is explained in TB SIG 13 and TB SIG 72.

c. WINTER MAINTENANCE. Special precautions necessary to prevent poor performance or total operational failure of equipment in extremely low temperatures are explained in TB SIG 66 and TB SIG 219.

d. DESERT MAINTENANCE. Special precautions necessary to prevent equipment failure in areas subject to extremely high temperatures, low humidity, and excessive sand and dust are explained in TB SIG 75.

25. Rustproofing and Painting

Electric Light Assembly MX-1292/PAQ is fungiproofed and rustproofed during manufacture. Both cases, the control panels, and the long-wave mercury-vapor lamp assembly are painted. All other metal parts are plated for corrosion resistance.

a. Minor scratches in the paint may be touched up by applying a semigloss olive-drab enamel. When the finish on the case or on the mercury-vapor lamp assembly has been badly scarred or damaged, rust and corrosion can be prevented by touching up bared surfaces. Use #00 or #000 sandpaper to clean the surface down to the bare metal; obtain a bright smooth finish.

Caution: Do not use steel wool. Minute particles frequently enter the case and cause harmful shorting or grounding of circuits.

b. When a touch-up job is necessary, apply paint with a small brush. Remove rust from the surface to be painted by cleaning the corroded area with solvent (SD). In severe cases, it may be necessary to use solvent (SD) to soften the rust and then to use sandpaper to bare the surface for painting. Paint must be semigloss olive-drab enamel of an authorized type consistent with existing regulations. Finish touch-up jobs by applying the proper moistureproofing and fungiproofing lacquer.

Section III. TROUBLE SHOOTING AT ORGANIZATIONAL MAINTENANCE LEVEL

26. General

Trouble shooting and repair work that can be performed on the equipment at the organizational maintenance level is limited in scope by the tools and test equipment available, replaceable parts issued, and the existing tactical situation. However, the equipment is of such a nature that most troubles can be found by organizational personnel through visual inspection and substitution of parts.

27. Visual Inspection

Usually, failure of the electric light assembly to operate properly will be caused by a visible fault. When a failure occurs and the cause is not immediately apparent, check the following before starting detailed trouble shooting:

a. Improperly seated lamps.

b. Burned-out or broken lamps.

c. Dirt and dust on filters.

d. Improperly connected cables.

e. Worn, broken, or disconnected cords or connectors.

f. Dirty, corroded, bent, or spread contacts on connectors.

g. Loose or broken connections on cable connectors.

h. Dirty or corroded lampholders.

i. Improperly functioning switches.

j. Burned-out autotransformer.

28. Trouble Shooting Using Equipment Performance Checklist

a. GENERAL. The equipment performance checklist (par. 29) will help to locate trouble in the equipment. The list gives the item to be checked, the action or condition under which it is to be checked, normal indications, and corrective measures that can be taken by the operator. *To use this list effectively, follow the items in numerical sequence.*

b. ACTION OR CONDITION. For some items, the information given in the *Action or condition* column consists of various switch settings under which the item is to be checked. For other items, it represents an action that must be taken to check the normal indication given in the *Normal indication* column.

c. NORMAL INDICATIONS. The normal indications listed include the visible signs that the operator should perceive when he checks the items. If these signs are not normal, the operator should apply the recommended corrective measures.

d. CORRECTIVE MEASURES. The corrective measures listed are those which the operator can make without turning in the equipment for repairs. If the equipment is completely inoperative or if the recommended corrective measures do not yield results, trouble shooting at the field maintenance level is necessary. However, if the tactical situation requires that operation be maintained, and if the equipment is not completely inoperative, the operator must try to keep the equipment in operation as long as it is possible to do so.

29. Equipment Performance Checklist

	Item No.	Item	Action or condition	Normal indication	Corrective measures
PREPARATORY	1	Power switches on long-wave and short-wave units (figs. 2 and 4).	Throw to OFF.		
	2	12-foot power cable (fig. 2).	Plug into 110 V. POWER INPUT receptacle and power source.		
	3	3-foot power cord on long-wave mercury-vapor lamp assembly (fig. 2).	Plug into 245 V. FOR M.V. LAMP receptacle.		
	4	6-foot power cable (fig. 4).	Plug into 110 V. INPUT receptacle and power source.		
START	5	Emergency black-light lamp (fig. 6).	Plug into 110 V. FOR 250-W. LAMP receptacle.		
	6	110 V. FOR 250-W. LAMP switch.	Throw to ON.	Emergency black-light lamp lights.	See that lamp is seated securely in socket. Lamp may be burned out; substitute spare lamp. If spare lamp does not light, check power connections.

	Item No.	Item	Action or condition	Normal indication	Corrective measures
S T A R T	7	245 V. FOR M.V. LAMP switch.	Throw to ON.	Long-wave mecury-vapor lamp lights.	See that lamp is seated securely in socket. Substitute spare lamp. If spare lamp fails to light, check power connection.
	8	110 V. CIRCUIT switch.	Throw to ON.		
	9	MOMENTARY switches.	Hold each switch at ON for several seconds, then release it.	Germicidal lamps light as associated switches are operated.	If only one or two lamps fail to light, substitute spare lamp. If spare lamp does not light, check lamp-holder and MOMENTARY switch. If no lamps light, check power connections and 110 V. CIRCUIT switch, which should be ON.
EQUIP. PERF.	10	Emergency black-light lamp.	Securely screwed into lampholder and firmly seated in control panel receptacle.	Burns with bright violet light; fluoresces material at distances up to 25 feet in total darkness.	Substitute spare lamp. Check power connection.
	11	Long-wave mercury-vapor lamp.	Securely screwed into lampholder.	Burns with low- or medium-intensity violet light, depending on filter used; fluoresces materials at distance of 15 to 40 feet in total darkness.	Clean filter. Substitute spare mercury-vapor lamp. Check power connection.

29. Equipment Performance Checklist (contd)

	Item No.	Item	Action or condition	Normal indication	Corrective measures
EQUIP. PERF.	12	Short-wave germicidal lamps with filter.	Lamps firmly seated, and filter in place covering lamps.	Burn with low-intensity violet light; fluoresce materials at distances up to 15 feet in total darkness.	Clean filter. Check power connections. Be sure that 110 V. CIRCUIT switch is ON. Substitute spare lamps.
STOP	13	245 V. FOR H.V. LAMP switch.	Turn to OFF.	Long-wave mercury-vapor lamp is extinguished.	
	14	110 V. CIRCUIT switch.	Turn to OFF.	Germicidal lamps are extinguished.	
	15	110 V. FOR 250-W LAMP switch.	Turn to OFF.	Black-light lamp is extinguished.	

CHAPTER 4
THEORY

30. General

Electric Light Assembly MX-1292/PAQ operates on the principle that most solids and liquids and some gases fluoresce, or glow, when excited by ultraviolet light of a particular wavelength. Individual materials exhibit characteristic fluorescence (par. 15*c*) by radiating light of a distinctive color and brilliance.

31. Theory of Long-wave Unit
(fig. 8)

a. The majority of applicable investigations are made by using ultraviolet light in the near-ultraviolet region of the spectrum. This band is furnished by the mercury-vapor lamp with its associated filters or, if necessary, by the emergency black-light lamp. Filters are used with the mercury-vapor lamp to minimize the visible light rays emitted by the lamp and to permit passage of the invisible light rays. The wide-transmission filter (fig. 7) is used for most investigations, because it provides an intense radiation at the 3,650-angstrom unit line, where a large number of materials fluoresce. The photographic filter is more limited and is used primarily for photographing evidence and for laboratory analytical examinations. The emergency black-light lamp emits an excessive amount of visible light, and should be used only when the other light sources are inoperative.

b. A 110-volt, 60-cycle power input is supplied to the long-wave unit through J1 (fig. 8). Receptacle J2 for the emergency black-light lamp is connected directly across J1, and power switch S1 for the lamp circuit is in series with one side of the line. Autotransformer T1 steps up the input to 245 volts for operation of the mercury-vapor lamp. Switch S2 controls the application of power to the mercury-vapor lamp circuit, for which the required output is available at receptacle J3. The emergency black-light lamp and the mercury-vapor lamp can be used at the same time.

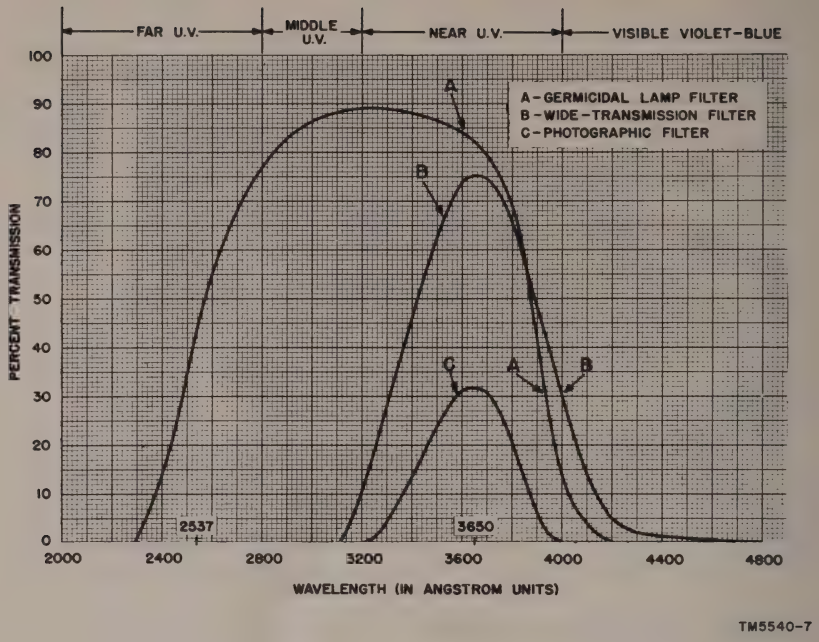


Figure 7. Graph showing filter characteristic curves.

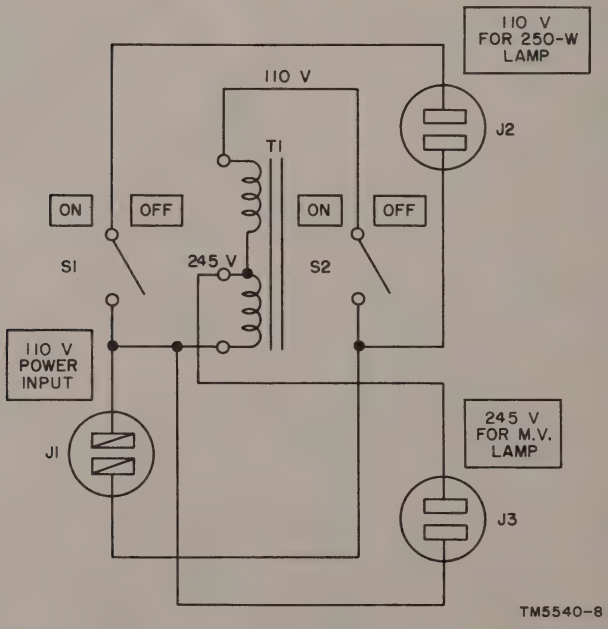


Figure 8. Long-wave unit, schematic diagram.

32. Theory of Short-wave Unit

(fig. 9)

a. The radiation furnished by this unit is useful particularly for exciting fluorescence in minerals, ores, radioactive substances, and certain fluids that require the strong 3,200-angstrom unit transmission provided by the germicidal lamps and filter (fig. 7).

b. The three germicidal lamps, I 201, I 202, and I 203, and their associated ballasts, T201, T202, and T203, are connected in parallel across the 110-volt, 60-cycle input. Switch S204 controls the application of power to the unit, and starter switches S201, S202, and S203 control the application of power to the individual lamps.

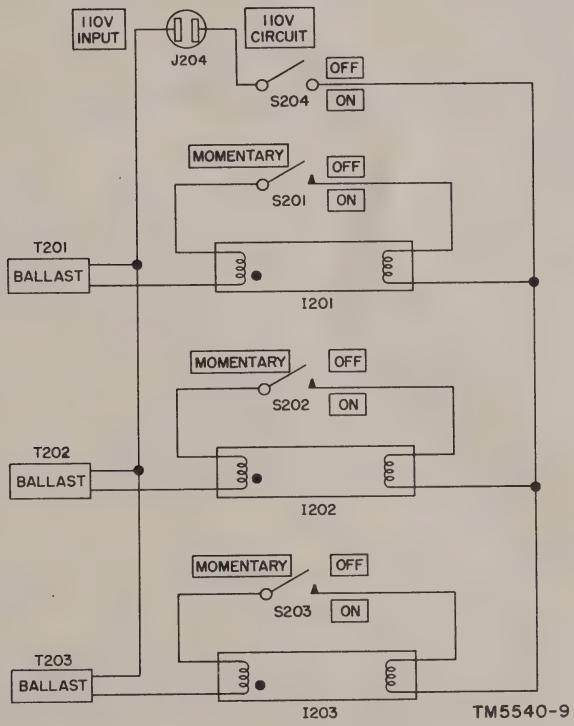


Figure 9. Short-wave unit, schematic diagram.

CHAPTER 5
FIELD MAINTENANCE INSTRUCTIONS

Note. This chapter contains information for field maintenance. The amount of repair that can be performed by units having field maintenance responsibility is limited only by the tools and test equipment available, and by the skill of the repairman.

Section I. INSPECTING AND CLEANING

33. Inspecting

Examine the equipment for dents, holes, corrosion, fungus, loose or missing screws and hardware, and badly scratched or bare painted surfaces. Check receptacles for cracked bodies; dirty, corroded, bent, or spread contacts; and loose mountings. Check switches for freedom of movement, positive action, and security of mountings. Examine the filters for cracks, chips, or scratches, and the lamps for firm seating in their sockets. Inspect the cable assemblies for wear and cuts in insulation and for faulty connectors. Apply power to the equipment and check to see that each lamp lights when the associated switch is turned ON.

34. Cleaning

a. The electric light assembly should be dried completely after it has been cleaned with water or solvent (SD). All parts of the long-wave unit are readily accessible for cleaning without disassembly. To clean the short-wave germicidal lamps and reflector and to remove the rectangular filter for cleaning, remove the four screws that hold the filter panel in place and swing the panel open.

b. Mud or heavy dirt can be removed from the case, filters, and lamps by washing them with soap and water, rinsing them, and then drying them thoroughly. Be sure that no water enters the electrical parts of the equipment during cleaning. Use solvent (SD) to remove grease from all parts, *except electrical contacts.* Clean electrical contacts with carbon tetrachloride.

Section II. TROUBLE SHOOTING AT FIELD MAINTENANCE LEVEL

35. Tool and Test Equipment Required for Trouble Shooting

Item	Used to
Screw driver (5/32 in. blade).	Remove slotted screws.
Pliers.	Remove switch retaining nuts.
Soldering iron and rosin-core solder.	Solder electrical connections.
Multimeter TS-297/U, or equivalent.	Measure circuit voltage and check wiring continuity.

36. Trouble-shooting Procedures

In locating trouble, the first step is to sectionalize the fault by tracing it to the defective circuit or assembly. Then the trouble is localized to the defective part by voltage and continuity checks or by substitution of parts that are known to be good. The following paragraphs give step-by-step instructions for sectionalizing and localizing trouble.

a. LONG-WAVE UNIT. If neither lamp lights when the switches are thrown ON, there is probably trouble in the power input circuit. Check the a-c power source, and check voltage at the 12-foot power cable and at receptacle J1. If only the emergency black-light lamp lights, substitute a spare mercury-vapor lamp to determine whether the mercury-vapor lamp in use has burned out. If the spare mercury-vapor lamp fails to light, check output of the 245-volt autotransformer at J3, and check the 3-foot cable, the lamp socket, power switch S2, and receptacle J3 for proper voltage. If only the mercury-vapor lamp lights, plug the emergency black-light lamp into any 110-volt, 60-cycle, a-c outlet to determine whether the lamp has burned out. If it is good, check voltage at power switch S1 and receptacle J2. Be sure that all power has been turned off, and then use an ohmmeter to check the wiring for continuity.

b. SHORT-WAVE UNIT. In the event that none of the germicidal lamps light when the unit is plugged into the 110 V. FOR 250-W. LAMP receptacle on the long-wave unit, the 110 V. CIRCUIT switch is thrown to ON, and the MOMENTARY switches have been operated, connect the unit to another a-c outlet and operate the 110 V. CIRCUIT and the MOMENTARY switches again. If the lamps still fail to light, check the 6-foot power cable, switch S204, and receptacle J204 for proper voltage. If only one or two germicidal lamps fail to light, substitute a spare lamp. If the spare lamp does not light, check the associated starter switch, ballast, and lampholder for proper voltage.

37. Trouble-shooting Data

The following illustrations will aid in trouble shooting: schematic diagrams (figs. 8 and 9), wiring diagrams (figs. 10 and 11), front views (figs. 2 and 4), and removal of the short-wave unit chassis (fig. 12). Use the illustrations in conjunction with the trouble-shooting chart (par. 38).

38. Trouble-shooting Chart

Symptom	Probable trouble	Corrective measures
Both the long-wave mercury-vapor lamp and the black-light lamp fail to light.	A-C power source.	Check with voltmeter.
	12-foot power cable defective.	Check continuity with ohmmeter; repair or replace if defective.
	Defective receptacle J1.	Repair or replace.
	Break in wiring, or loose or broken connection.	Check continuity with ohmmeter; repair if defective.
Long-wave mercury-vapor lamp fails to light.	Lamp burned out.	Replace.
	Autotransformer defective.	Check continuity of windings with ohmmeter. Replace, if necessary.
	3-foot cable defective.	Check continuity with ohmmeter; repair or replace, if defective.
	Lamp socket defective.	Repair or replace.
	Power switch S2 defective.	Replace.
	Receptacle J3 defective.	Repair or replace.
	Break in wiring; loose or broken connection.	Check continuity with ohmmeter; repair.
Emergency black-light lamp fails to light.	Lamp burned out.	Replace.
	Power switch S1 defective.	Replace.
	Receptacle J2 defective.	Repair or replace.
	Break in wiring; loose or broken connection.	Check continuity with ohmmeter; repair.
None of germicidal lamps lights.	A-C power source.	Check with voltmeter.
	6-foot power cable defective.	Check continuity with ohmmeter; repair or replace.
	Receptacle J204 defective.	Repair or replace.
	Break in wiring; loose or broken connection.	Check continuity with ohmmeter; repair
	Power switch S204 defective.	Replace.

Symptom	Probable trouble	Corrective measures
One or two germicidal lamps fail to light.	Lamp burned out.	Replace.
	Spreading of lampholder contacts.	Increase tension.
	Starter switch defective.	Replace.
	Ballast defective.	Check continuity with ohmmeter. Replace if defective.
	Lampholder defective.	Repair or replace.
	Break in wiring; loose or broken connection.	Check continuity with ohmmeter; repair.
Lamps burn weakly.	Insufficient voltage.	Check power source with voltmeter.
Lamp flashes on and off intermittently.	Lamp loose in socket.	Tighten.

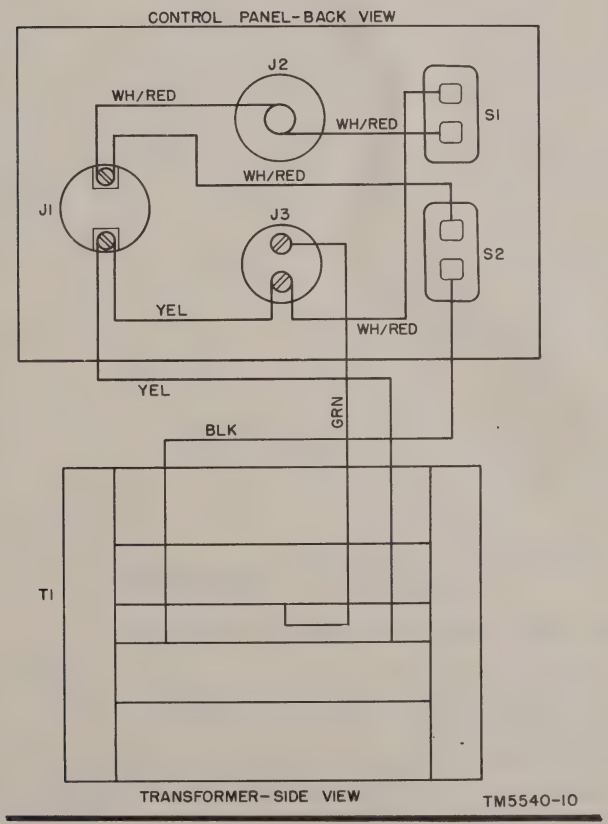
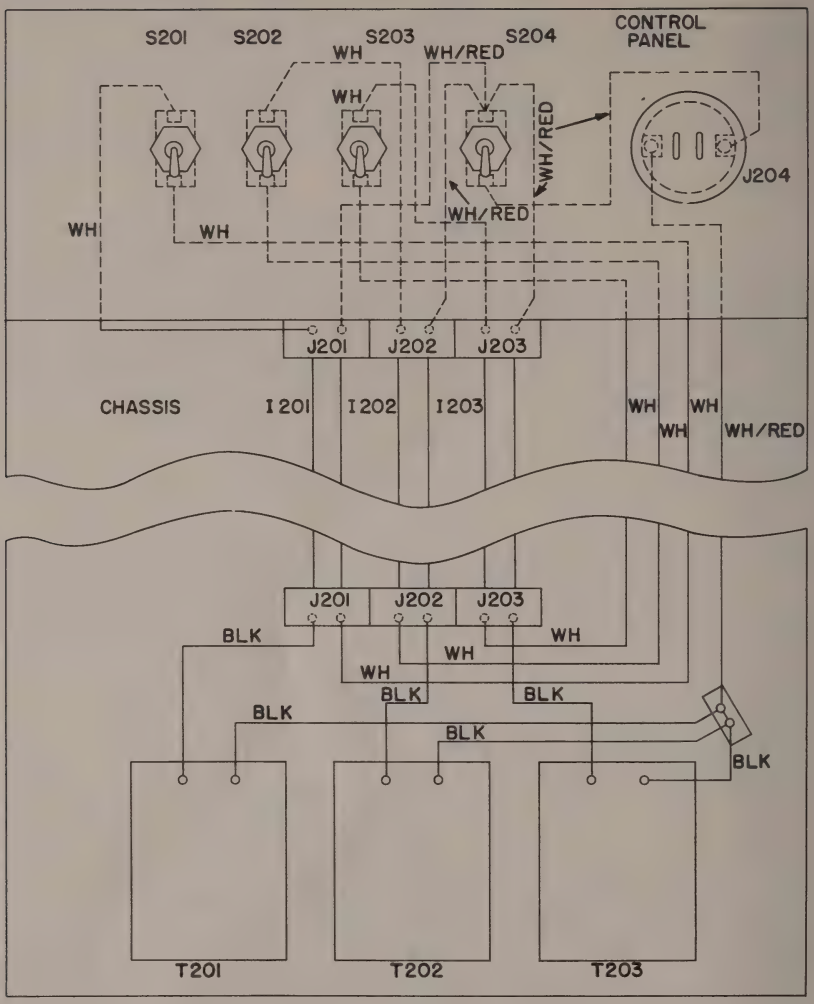


Figure 10. Long-wave unit, wiring diagram.



TM 5540-11

Figure 11. Short-wave unit, wiring diagram.

Section III. REPAIRS

39. Disassembly and Reassembly of Equipment

The majority of parts of Electric Light Assembly MX-1292/PAQ are mounted by metal screws. The toggle switches are mounted by hexagonal retaining nuts. Disassembly of parts mounted by screws or nuts is accomplished by removing the associated screws or nuts. Soldered leads are disconnected by unsoldering them. Disassembly and reassembly of the entire electric light assembly can be accomplished with a screw driver, a pair of pliers,

and a soldering iron. Step-by-step disassembly procedures for obtaining access to hidden parts are outlined in the following paragraphs. Reassembly is accomplished by reversing the disassembly instructions.

a. Long-wave Unit Control Panel and Autotransformer. The control panel and transformer must be removed from the case to permit access to the toggle switches, receptacles, and wiring.

(1) Remove the 10 screws from around the perimeter of the control panel and lift off the panel.

(2) Place the long-wave unit on end, support the transformer with one hand to relieve tension on the bolts, and remove from the bottom of the case the four bolts that secure the transformer mounting-bracket. Lift the transformer from its compartment.

b. Short-wave Unit Germicidal-lamp Reflector and Lampholders. To gain access to the lampholder contacts and wiring, proceed as follows:

(1) Remove the four screws that secure the hinged filter panel, and swing the panel open.

(2) Remove the three germicidal lamps from their lampholders.

(3) Remove the six screws that secure the reflector and lampholders to the case, and lift off the reflector and lampholders.

c. Short-wave Unit Chassis (fig. 12). The control panel is attached permanently to the short-wave unit chassis. To gain access to the switch and receptacle contacts and the wiring in back of the control panel, remove the complete chassis as follows:

(1) Perform steps given in subparagraph *b* above.

(2) Remove the two screws at the center of the chassis, the two screws at the end of the chassis on each side of the center ballast, and the two screws at each side of the control panel.

(3) Reach under the control panel with the fingertips (fig. 12), and lift out the chassis.

40. Refinishing

Check all surfaces for appearance and condition of finish. From a protection and durability standpoint, the finish should not show decided wear and should not be chipped or otherwise damaged. When the finish has been completely removed or worn thin, retouch the affected surfaces, after sanding and cleaning them, by applying semigloss, olive-drab enamel. Electric Light Assembly

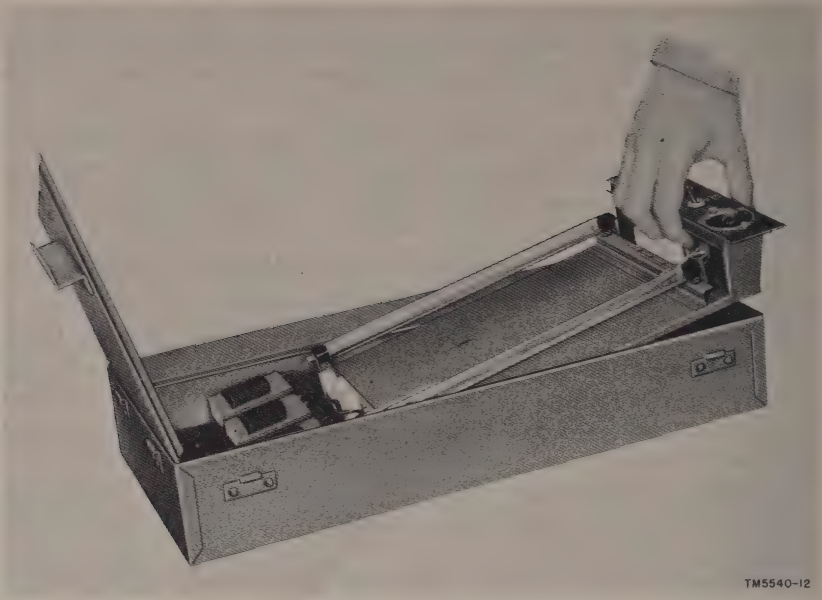


Figure 12. Removal of short-wave unit chassis.

MX-1292/PAQ has been moistureproofed and fungiprocfed during manufacture. After repairs have broken the coating of protective varnish, the affected parts must be moistureproofed and fungiproofed again. Instructions for moistureproofing and fungiproofing are given in TB SIG 13. Be careful during moistureproofing and fungiproofing to prevent lacquer from coating the surfaces of electrical contacts and rendering the equipment inoperative.

Section IV. FINAL TESTING

41. General

This section is to be used as a guide in determining the quality of a repaired component. The test outlined in paragraph 42*a* and *b* below may be performed by field maintenance personnel.

42. Tests

a. LONG-WAVE UNIT. Test the long-wave mercury-vapor lamp circuit and the emergency black-light lamp circuit for normal operation as follows:

(1) Apply power to the long-wave unit, and use Multimeter TS-297/U, or equivalent, to check the 245 V. FOR M.V. LAMP receptacle for an output of 245 volts after the 245 V. FOR M.V. LAMP switch has been turned ON.

(2) Plug the 3-foot power cord into the 245 V. FOR M.V. LAMP receptacle and check transmission of the mercury-vapor lamp by using a fluorescent material such as fluorescent ink or paint. The test material should fluoresce at distances up to 40 feet in total darkness when the wide-transmission filter is used.

(3) Plug the black-light lamp into the 110 V. FOR 250-W. LAMP receptacle, turn ON the 110 V. FOR 250-W. LAMP switch, and check transmission by using a fluorescent test material. The test material should fluoresce at distances up to 25 feet in total darkness.

b. SHORT-WAVE UNIT. Connect the 6-foot power cable to a 110-volt, 60-cycle outlet known to be good, turn ON the 110 V. CIRCUIT and MOMENTARY switches, and test the transmission of this unit by using a fluorescent material. The test material should fluoresce at distances up to 15 feet in total darkness.

CHAPTER 6
SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

43. Repacking for Shipment or Limited Storage

a. Stow all components and spare parts in the appropriate compartments and insert cushioning material, where needed, to prevent movement or possible damage from jolts or vibration. Place two bags of silica gel or a similar dessicant in the mercury-vapor lamp assembly storage compartment and two bags in the center compartment of the long-wave unit.

b. Latch the short-wave unit to the top of the long-wave unit, and place them in a corrugated cardboard carton. Wedge the equipment in the carton by using spacers of corrugated cardboard at the sides and on the top and bottom. Seal the flaps of the carton with adhesive tape.

c. Place the carton in a moisture-vaporproof foil bag and seal the bag; then insert the bag into a close-fitting, corrugated cardboard carton. Use fillers between the bag and carton, if necessary, to prevent movement. Seal the outer carton with adhesive tape.

44. Packing for Export Shipment

If the equipment is to be export shipped, place two cartons (par. 43*c*) in a suitable, lined wooden crate. Wedge the cartons tightly in place with corrugated cardboard spacers, and then secure the crate with metal straps.

Section II. DEMOLITION TO PREVENT ENEMY USE

45. Methods of Demolition

a. SMASH. Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.

b. CUT. Use axes, handaxes, machetes.

c. BURN. Use gasoline, kerosene, oil, flame throwers, incendiary grenades.

d. EXPLODE. Use firearms, grenades, TNT.

e. DISPOSE. Bury in slit trenches, fox holes, other holes. Throw into streams. Scatter.

f. OTHER. *Use anything immediately available for destruction of the equipment.*

46. Destruction of Components

When ordered by your commander, destroy all the equipment to prevent its being used or salvaged by the enemy.

a. Smash (par. 44*a*) all filters, lamps, transformers, and cases.

b. Cut (par. 44*b*) all cables and wiring.

c. Burn (par. 44*c*) instruction books.

d. Bury or scatter (par. 44*e*) all the components after destroying them.

DESTROY EVERYTHING

APPENDIX I
REFERENCES

Note. For availability of items listed, check SR 310-20-3, SR 310-20-4, and SR 310-20-5. Check Department of the Army Supply Catalog SIG 1 for Signal Corps Supply Catalog pamphlets.

1. Army Regulations

AR 380-5	Military Security (Safeguarding Military Information).
AR 750-5	Maintenance of Supplies and Equipment (Maintenance Responsibilities and Shop Operation).

2. Supply Bulletins

SB 11-47	Preparation and Submission of Requisitions for Signal Corps Supplies.
SB 11-76	Signal Corps Kit and Materials for Moisture- and Fungi-Resistant Treatment.

3. Painting, Preserving, and Lubrication

TB SIG 13	Moistureproofing and Fungiproofing Signal Corps Equipment.
TM 9-2851	Painting Instructions for Field Use.

4. Camouflage, Decontamination, and Demolition

FM 5-25	Explosives and Demolitions.
TM 3-220	Decontamination.

5. Other Publications

SR 310-20-3	Index of Training Publications.
SR 310-20-4	Index of Technical Manuals, Technical Regulations, Technical Bulletins, Supply Bulletins, Lubrication Orders, Modification Work Orders, Tables of Organization and Equipment, Reduction Tables, Tables of Allowances, Tables of Organization, and Tables of Equipment.
SR 310-20-5	Index of Administrative Publications.
SR 700-45-5	Unsatisfactory Equipment Report (Reports Control Symbol CSGLD-247).
SR 745-45-5 NAV DEPT SERIAL 85P00 AFR 71-4	Report of Damaged or Improper Shipment (Reports Control Symbols CSGLD-66 SandA-70-6 (Navy), and AF-MC-U2 (Air Force)).
TB SIG 25	Preventive Maintenance of Power Cords.
TB SIG 66	Winter Maintenance of Signal Equipment.
TB SIG 72	Tropical Maintenance of Ground Signal Equipment.
TB SIG 75	Desert Maintenance of Ground Signal Equipment.
TB SIG 123	Preventive Maintenance Practices for Ground Signal Equipment.
TB SIG 219	Operation of Signal Equipment at Low Temperatures.
TM 11-453	Shop Work.
TM 11-681	Electrical Fundamentals (Alternating Current).
TM 11-5500	Multimeter TS-297/U.

APPENDIX II
IDENTIFICATION TABLE OF PARTS

Note. The following identification table of parts covers Electric Light Assembly MX-1292/PAQ (Sig C stock No. 2Z5996-1292). The fact that a part is listed in this table is not sufficient basis for requisitioning the item. Requisitions must cite an authorized basis, such as a specific T/O&E, T/A, SIG 7-8-10, SIG 10, list of allowances of expendable material, or another authorized supply basis. The Department of the Army Supply Catalog applicable to the equipment covered in this manual is SIG 7 & 8-MX-1292/PAQ. For an index of available supply catalogs in the Signal portion of the Department of the Army Supply Catalog, see the latest issue of SIG 1, Introduction and Index.

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
J4	ADAPTER, lampholder: bakelite body, brass cont; 1½" lg, exclusive of prongs.	Used to adapt emergency black-light lamp to standard a-c receptacle.	6Z153-1
T201, T202, T203	BALLAST, lamp: 118 v, .158 amp, single ph, 8 w, 60 cyc.	Ballast for mercury-vapor lamp I 201, I 202, and I 203.	6Z808-6
	CABLE, power: electrical; 2 stranded, #18 AWG cond; 300 v.	Bulk cable used in all cable assemblies furnished with the equipment.	1B3018-2.28
P1	CONNECTOR, plug: 2 twist-lock male cont, curved; 1⅛" lg x 1.468" dia excluding protruding cont.	Connects 12-foot extension cable to receptacle.	6Z1734.4
P2	CONNECTOR, plus: 2 curved parallel female cont; 1-9/16" lg excluding protruding cable grip.	Female connector on 12-foot extension cable.	6Z3150-1
P4	CONNECTOR, plug: 2 male flat prong cont; straight type; 1-5/32" lg x 1-17/32" dia.	Connects power cable to receptacle.	6Z1727

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
P5	CONNECTOR, plug: 2 female double T-shaped cont; 1⅜" lg x 1.531" dia excluding cable clamp.	Female connector on 12-foot power cable.	4T104274
J1, J204	CONNECTOR, receptacle: 2 male flat parallel; straight type 2.312" dia x 1.250" h o/a.	Used to receive 110-volt, power-input cable connector.	6Z3150A-2
J2	CONNECTOR, receptacle: 2 female cont w/T slot; straight type; 1.375" lg x 1.5000" dia.	Receives emergency black-light lamp base adapter.	6Z7785
J3	CONNECTOR, receptacle: 2 female curved parallel; straight type; 1⅜" dia x 1-1/16" h.	Receives mercury-vapor lamp power-cable plug.	6Z7813-6
O 201	FILTER, light: filter for germicidal lamps; glass.	Rectangular filter for short-wave germicidal lamps.	6Z3853-8
O 2, O 1	FILTER, light: red-purple ultra; glass.	Wide-transmission ultraviolet filter for mercury-vapor lamp.	6Z3853-7
O 3, O 4	FILTER, light: red-purple ultra; glass.	Photographic filter for mercury-vapor lamps.	6Z3853-6
	GOGGLES, safety: ultraviolet protective; Willsonite type F350L "B".	Used to protect operator's eyes when short-wave lamps are used.	7-110-555[a]
I 4, I 3	LAMP, incandescent: 115 v; 250 w.	Emergency black-light lamp.	6Z6815-49
I 1, I 2	LAMP, mercury vapor: 100 w; med screw skirted base.	Long wavelength ultraviolet light source.	6Z6901-100

[a] Medical Corps stock number.

Identification Table of Parts (contd)

Ref symbol	Name of part and description	Function of part	Signal Corps stock No.
I 201, I 202, I 203, I 204, I 205	LAMP, mercury-vapor: 8 w; T-5, clear, ultraviolet light.	Short wavelength ultraviolet light source.	6Z6901-8
J6	LAMPHOLDER: 250 v max; 660 w; 2⅝" lg x 1⅞" dia.	Receives long-wave, mercury-vapor lamp.	6Z8355-30
J201, J202, J203	LAMPHOLDER: 250 v; 75 w.	Lampholder for short-wave germicidal lamp I 201, I 202, and I 203.	6Z8327-8
O 6, O 5	MOUNT, filter: steel; olive drab.	Mounts filter on long-wave, mercury-vapor lamp.	6Z7180-1
O 203	REFLECTOR, light: .020" thk polished aluminum.	Reflector for short-wave germicidal lamps.	6Z7827.13
	SCREWDRIVER TL-22 for slot drive; 1½" blade; bit 5/32" wd. x .030" thk.	Used for disassembly and reassembly of equipment.	6R15120
S201, S202, S203	SWITCH, toggle: SPST; 40 amp, 115 v ac; JAN type ST42C.	Starter switch for short-wave germicidal lamps.	3Z9863-42C
S1, S2	SWITCH, toggle: SPST; 15 amp; 125 v dc; 40 amp, 115 v ac.	Power switch.	3Z9863-42A.1
T1	TRANSFORMER, power: fixed autotransformer; input data, 105/118 v ac, 60 cyc, single ph; output data, 245 v ac, .9 amp.	Provides 245 v for long-wave, mercury-vapor lamp.	2Z9621-564

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